AMS Course Report

April 26, 2022

Contents

Presentation

The new Master's Degree Course in Advanced Molecular Sciences (AMS) is a Master's Degree Course in Chemistry of Class LM-54 and is offered exclusively in English. It originates as a proposal in the project for the Department of Excellence of the Department of Chemistry "Ugo Schiff" 2018-2022. The project provides 10 scholarships worth 10,000 euros for 4 study cycles (i.e. a total of 8 years over a period of 5 years) for Italian or foreign students who do not reside in Tuscany or who have obtained a three-year degree in a university other than the University of Florence. The call for applications for the scholarships provides that the amount of the scholarships will be awarded after a competitive examination that includes an evaluation of the CV and an interview carried out on line. The winners receive their grants in tranches on the basis of the standards set out in the call for applications. The scholarship is renewable for the second year of study on the basis of the achievement of specific results.

The AMS degree course was authorized by the Minister of Universities and Scientific Research on 29 July 2019 and from that date the national and international recruitment of new students began. The courses of the first academic year started at the end of September 2019. The degree course consists of two years. The first year is devoted to fundamental courses taken by all students with the exception of 3 courses in the CHIM02 field from which students are invited to choose 2. The majority of courses also include laboratory work, which is carried out in the final part of the course (in this case the courses are organised in 4+2 or 5+1 mode as regards the distribution of CFUs between theory and practice). The first semester of the second year is dedicated to a series of courses that students can select from among all those offered, in English, specifically by the course or among all those offered by the University of Florence. The second semester is dedicated not only to the completion of exams, but also to internships and experimental theses that students can spend within the Department or at foreign institutions or research organizations.

Cohort 2019-2020

There were 9 students enrolled in the Degree, which started at the end of September 2019, and 3 scholarships were awarded (2 Italian out-of-town students and one student of Turkish origin). All three scholarships were also renewed for the academic year 2020-2021. During the first year there was one case of drop-out. The courses in this cohort ended in June 2020 and it is possible to graduate on schedule by April 2022. There are currently 4 students who have already graduated (3 in the September 2021 session and 1 in the October 2021 session), representing 50 % of the eight students who continued in the second year. It is expected that by April 2022 the number of graduates will rise to 5 with the result that 55 % of the students enrolled in this cohort will graduate on time. Of the 4 graduates, 3 are PhD students at the University of Florence, the fourth graduate is currently employed in Italy in a multinational company.

Cohort 2020-2021

There were 6 students enrolled in the courses that started at the end of September 2020 and 2 scholarships were awarded (an Italian student off-campus and an Austrian student). There is also a student enrolled under the UNICORE 2.0 programme in collaboration with UNHCR (Unicore Project | Student Services | University of Florence | UniFI). This cohort was the most affected by the Coronavirus pandemic in terms of recruitment opportunities (hence the low number of enrolments and grants awarded) and course attendance. In fact, both the first and second semesters saw courses taught mostly at a distance and access to university facilities limited mostly to practical activities. Due to the problems caused by the pandemic, the Course Council decided to postpone the deadlines for meeting the requirements for receiving one of the tranches of the scholarships. This decision is in line with the national decision to extend the 2019-2020 academic year. Although there have been no explicit drop-outs among those enrolled, two of them have not yet acquired any CFUs.

Cohort 2021-2022

There are 8 students enrolled in the courses that began at the end of September 2021, and 5 grants have been awarded (1 Italian student with a three-year degree acquired abroad, 3 Italian students from outside Tuscany and 1 foreign student). Due to the considerable difficulties encountered in acquiring visas, when necessary, an extension of the deadline for the acquisition of credits is envisaged. In spite of the prolonged pandemic and the associated restrictions, course attendance took place in person and laboratory activities were also completed.

Promotional and recruitment activities

The international vocation of the Course of Studies suggested by the use of the English language and the presence of scholarships explicitly aimed at students residing outside the region of Tuscany requires a promotional activity trying to exploit all possible channels of communication. The ministerial authorisation for the course of studies arrived on 29 July 2019 and therefore the timeframe for any promotional campaign was very tight. Posters, flyers and brochures were designed and printed to be distributed at scientific events (quickly made quite rare, however, given the pandemic) using University and Department resources. Notice was given of the presence and nature of the Study Course on institutional websites such as Universitaly and Studyinitaly. A Facebook page

(https://www.facebook.com/Advanced-Molecular-Sciences-922261341456059) and an Instagram page (https://www.instagram.com/advanced_molecular_sciences/?hl=en) were also set up. The office of the Tuscany Region in Brussels was contacted and several research centres at European level were contacted. During the first two years, the response from candidates has been considerable and almost a hundred requests for authorisation have been received by the course's teaching committee. The applications received come mainly from South East Asia and the Arab world. Enrolment in this course requires compliance with the criteria contained in the so-called Chemistry Eurobachelor (http://www.con-chimica.unimore.it/documenti/Contenuti_di_base_chimica.pdf), i.e. at least 50 CFU with practical activities in the chemical disciplines CHIM01/02/03/06 and 20 CFU in mathematics, physics and computer science. These requirements have led to the rejection of a large number of applications from candidates or to the assignment of educational debts. Since the summer of 2021, a parallel recruitment activity has also begun using more targeted social networks such as LinkedIn, and the University of Florence has recently signed a contract with Keystone, manager of the Educations.com portal. The portal is a point of reference for students from all over the world who wish to study abroad at all possible levels. On the Educations.com portal it is now possible to consult the page of the University of Florence and the references to all its degree courses and Doctoral Schools. In addition, a few months ago the University of Florence activated the Dream Apply platform (https://apply.unifi.it/) which allows foreign students to request an evaluation of their university career in order to continue their studies in Italy. Through this platform, it is very easy to interact with candidates and decide whether or not to grant the authorisation. Although this new feature does not directly concern the specific course of study, it makes interaction with candidates much simpler and more immediate and removes obstacles that may discourage foreign candidates who are not used to Italian procedures.

Erasmus and Double Degree activities

The presence of an English-language course of study has also attracted Erasmus students who regularly and profitably follow the courses of this master's degree.
An important innovation is the recognition of a double degree between the Master's degree in Advanced Molecular Sciences and the Master's degree in Integrative Chemistry and Innovation at the University Paris Science et Lettres Chimie Paritech. Students who acquire a certain number of credits at the Italian institution and at the French institution acquire the double degree.
Similar initiatives are underway to conclude agreements with other international institutions.

New Courses

In the academic year 2020-2021 a new course was introduced:" Modern trends in Chemistry, Industry and Management". The course is seminar-based and included experts invited to present topics of interest to the general public. The first edition of the course was attended by experts from ENI, ST-Microsystems, experts in environmental issues. The course was a great success and attracted a large group of participants from the Chemistry and Engineering Doctoral Schools. In the second year, some of the recorded lectures were repeated and new ones were added. In this case, the course was restricted to Master's degree students. A new edition of the course is planned for next autumn, again open to PhD students, with new topics.

Level of Student Satisfaction with the Master's Degree

The University of Florence requires each student to complete a questionnaire at the end of each course in order to express an opinion on the aspects of the course, the clarity of the teacher's presentation and the interest aroused. The ratings obtained by the students are gratifying and generally above the average of the ratings obtained in the School of Science. There has been some criticism of the difficulty of some courses and the excessive study load. These aspects have been discussed in regular meetings with student representatives and the results passed on to the respective teachers.

Summary and Outlook

While student satisfaction is a strength of the course, the small number of students is a critical point. Indeed, initial expectations were that more students would be involved. The pandemic in recent years may be an excuse. This year's results, which saw 5 scholarships awarded, the largest number to date, give hope for an increase in enrolment. Indeed, an analysis of the applications already analysed shows an increase in the number of accepted applications for the 2022-2023 academic year.
However, the academic year 2022-2023 will be the last year in which scholarships will be awarded. There is therefore a concern that future development will be cancelled out by the lack of financial resources. For this reason, it is deemed useful to reconsider the number and amount of future scholarships and to find sufficient financial resources to offer a better proposal for this Master's degree. It is also believed that the accreditation of the double degree with the French university Chimie Paritech could increase its attractiveness to European students.
Finally, although it is still too early to assess how the world of work is liking our graduates, it is worth noting that the first three graduates have been awarded doctoral scholarships and one student has already found employment with a multinational company. We hope to have more solid data soon to confirm this positive aspect.